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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,722

08/08/2006

Naohiro Yoshida

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OLIFF & BERRIDGE, PLC

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EXAMINER

DEMERS, MARC B

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,722	Applicant(s) YOSHIDA, NAOHIRO	
	Examiner MARC B. DEMERS	Art Unit 4133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-13 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>08/08/2006, 11/19/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 9 and 12 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 9, the instant Specification does not teach how the pressure-regulating means would be capable of controlling the pressure of the oxidation gas supplied to the pressure-regulating means independently from the oxidize gas in the cathode side, nor how depressurizing the oxidation gas supplied to the pressure-regulating means would depressurize the fuel gas in the anode side. Referring to *In re Wands*, 8 USPQ2d 1400 (Fed Cir 1988) "The Wands Factors", the amount of direction or guidance presented is lacking; also, there is an absence of working examples to show how this would be able to be accomplished by one of ordinary skill in the art. Therefore the specification does not enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 12, the instant Specification does not teach how the oxidation gas pressure-regulating means would be capable of controlling the

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pressure of the oxidation gas supplied to the pressure-regulating means independently from the oxidize gas in the cathode side, nor how pressurizing the oxidation gas supplied to the pressure-regulating means would pressurize the fuel gas in the anode side. Referring to *In re Wands*, 8 USPQ2d 1400 (Fed Cir 1988) "The Wands Factors", the amount of direction or guidance presented is lacking; also, there is an absence of working examples to show how this would be able to be accomplished by one of ordinary skill in the art. Therefore the specification does not enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 and 12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 9, it is not clear which element or feed stream is recited by the term "the oxidize gas in the cathode side."

In claim 12, it is not clear which element or feed stream is recited by the term "the oxidize gas in the cathode side."

Claim 9 recites the limitation "the pressure of the oxidation gas". There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "a pressure of the oxidation gas". There is insufficient antecedent basis for this limitation in the claim.

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Claims 9 and 12 recite "the pressure-regulating means" in line 3, each. Said limitation renders the claims indefinite, because it is not clear which pressure-regulating means is being referenced to, as both claims 9 and 12 recite "oxidation gas pressure-regulating means" in lines 1-2, each, in addition to "pressure-regulating means provided on the fuel supply line" as recited in line 4 of claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 8, 10, 11 and 13 rejected under 35 U.S.C. 102(b) as being anticipated by Kazuo (JP 2002-352837, see machine translation).

Regarding claim 1, Kazuo teaches a fuel cell system (Fig 8), comprising: a fuel gas supply line (Fig 8, L1) that supplies fuel gas from a fuel gas supply source (2) to the fuel cell (1) ([0037], [0103]); pressure-regulating means (31) provided on the fuel gas supply line (L1) and for regulating a pressure of the fuel gas supplied from the fuel gas supply source (2) ([0103]); a circulation route (L2) that returns the fuel gas discharged from the fuel cell (1) to the fuel gas supply line (L1) ([0107]), and a fuel gas pump (4) for circulating the fuel gas in the circulation route (L2) ([0004], [0041]), wherein the circulation route (L2) is

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connected to the fuel gas supply line (L1) such that the fuel gas is returned to the fuel gas supply line in upstream of the pressure-regulating means (31) ([0103]).

Regarding claim 2, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, wherein the pressure-regulating means (31) is configured so as to regulate the pressure of the fuel gas in the fuel gas supply line by using a pressure of oxidation gas supplied to the fuel cell ([0084]), the fuel cell system further comprising: an oxidation gas supply line (L3) for supplying the oxidation gas supplied to a cathode (18) of the fuel cell (1) ([0037]); oxidation gas supply means (12) provided in the oxidation gas supply line (L3) and for pressurizing and supplying the oxidation gas to the cathode (1b) ([0043]); cathode side pressure detection means for detecting the pressure of the oxidation gas supplied to the cathode of the fuel cell ([0084]); anode side pressure detection means (32) for detecting the pressure of the fuel gas supplied to an anode (1a) of the fuel cell (1) ([0103]); and control means (21) for controlling the pressure of gas supplied to the fuel cell from at least either the fuel gas supply line and the oxidation gas supply line, so that the differential pressure between the oxidation gas detected by the cathode side pressure detection means and the fuel gas detected by the anode side pressure detection means becomes within a predetermined range ([0084]).

Regarding claim 3, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, wherein the control means (21) controls at least either one of the oxidation gas supply means or the pressure-

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regulating means so that the differential pressure becomes within the predetermined range ([0084]).

Regarding claim 8, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, wherein the anode side pressure detection means (32) estimates and detects the pressure of the fuel gas on the basis of a drive amount of the fuel gas pump ([0020], [0030]).

Regarding claim 10, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, wherein when the pressure of the fuel gas is larger than the pressure of the oxidation gas, and the differential pressure therebetween is outside the predetermined range, the oxidation gas supply means (12) pressurizes the oxidation gas supplied to the cathode side (1b) to reduce the differential pressure ([0057], [0084]).

Regarding claim 11, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, further comprising purge means (15,16) for purging the fuel gas in the circulation route (L2), wherein when the pressure of the fuel gas is larger than the pressure of the oxidation gas, and the differential pressure therebetween is outside the predetermined range, the purge means (15,16) depressurizes the fuel gas in the anode side (1a) to reduce the differential pressure ([0048], [0053]).

Regarding claim 13, Kazuo discloses all the claim limitations as set forth above and also discloses the fuel cell system, wherein when the pressure of the oxidation gas is larger than the pressure of the fuel gas, and the differential pressure therebetween is outside the predetermined range, the oxidation gas

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supplied to the cathode side (1b) is depressurized by the oxidation gas supply means (12) so that the differential pressure is reduced ([0057], [0084]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 7 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo (JP 2002-352837, see machine translation) as applied to claims 1 and 2 above, and further in view of Morishima et al. (DE 10331261, see English-language equivalent US 7,205,243).

Regarding claim 7, Kazuo discloses all the claim limitations as set forth above, but Kazuo does not expressly disclose wherein the cathode side pressure detection means estimates and detects the pressure of the oxidation gas on the basis of a drive amount of the oxidation gas supply means.

However, Morishima does teach a similar fuel cell system wherein the control unit estimates a gas pressure using a drive amount of said gas pump instead of measuring the pressure of said gas directly (col 8, ln 62-67 'may use a flow rate... as measured').

Kazuo and Morishima are combinable because they are concerned with the same field of endeavor, namely fuel cell systems and methods for fluid circulation therewithin.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add Morishima's teaching of estimating flow pressure using flow rate of said gas instead of measuring gas pressure directly to the fuel cell system of Nissan because that is an alternative embodiment of said invention can be embodied without departing from the principle of the invention (see Morishima col 8, ln 57-61). Morishima discloses that control using pressure and drive amount of a gas (flow rate) are equivalents (col 8, ln 57-61).

Regarding claim 8, Kazuo discloses all the claim limitations as set forth above, but Kazuo does not expressly disclose wherein the anode side pressure detection means estimates and detects the pressure of the fuel gas on the basis of a drive amount of the fuel gas pump.

However, Morishima does teach a similar fuel cell system wherein wherein the control unit estimates a gas pressure using a drive amount of said gas pump instead of measuring the pressure of said gas directly (col 8, ln 62-67 'may use a flow rate... as measured').

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Kazuo and Morishima are combinable because they are concerned with the same field of endeavor, namely fuel cell systems and methods for fluid circulation therewithin.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add Morishima's teaching of estimating flow pressure using flow rate of said gas instead of measuring gas pressure directly to the fuel cell system of Nissan because that is an alternative embodiment of said invention can be embodied without departing from the principle of the invention (see Morishima col 8, ln 57-61). Morishima discloses that control using pressure and drive amount of a gas (flow rate) are equivalents (col 8, ln 57-61).

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ

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619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent Pub. No. 2008/0220303.

Although the conflicting claims are not identical, claim 1 of the instant application is directed to an invention not patentably distinct from invention recited in claims 1-15 U.S. Patent Pub. No. 2008/0220303, because said instant claim 1 recite only the limitations which are also recited in conflicting claims 1-15 U.S. Patent Pub. No. 2008/0220303.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARC B. DEMERS whose telephone number

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is (571)270-1230. The examiner can normally be reached on Monday - Thursday, 7:30 AM to 5:00 PM, every other Friday 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B. D./
Examiner, Art Unit 4133

/Basia Ridley/
Supervisory Patent Examiner, Art Unit 4133